

In the Specification

Please replace the Related Applications Paragraph on page 1 with the following paragraph:

This application is the U.S. National Phase of PCT/US96/02153, filed February 12, 1996 and is a continuation-in-part of U.S. Serial No. 08/523,004 (Attorney Docket No. LKS94-04A), filed on September 1, 1995, the teachings of which are incorporated herein by reference in their entirety.

Amendments to the specification are indicated in the attached "Marked Up Version of Amendments" (page i).

In the Claims

Claims 33, 34, 37, 38, 44, 46, 89-93 and 94-100 drawn to non-elected inventions (Paper No. 18 at page 2, Paragraph No. 2) and Claims 102, 104, 110, 114 and 123 have been cancelled without prejudice. Claims 24, 103, 107-109, 113, 120-122, 126, 128, 129, 131, 133 and 134 have been amended and are presented below in amended form and Claims 136-160 are new. In accordance with 37 C.F.R. § 1.121(c)(1)(ii), amendments to the claims are indicated in the attached "Marked Up Version of Amendments" (pages i-iv).

24. (Twice Amended) A fusion protein comprising a naturally occurring primate MAdCAM, wherein said naturally occurring primate MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 55% amino acid sequence similarity to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4 and SEQ ID NO:6.

103. (Amended) The fusion protein of Claim 24 wherein said naturally occurring primate MAdCAM has at least about 75% amino acid sequence similarity to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4 and SEQ ID NO:6.

107. (Amended) A fusion protein comprising an  $\alpha 4\beta 7$  integrin-binding fragment of a naturally occurring primate MAdCAM, wherein said primate MAdCAM has at least about 55% amino acid sequence similarity to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4 and SEQ ID NO:6, and said  $\alpha 4\beta 7$  integrin-binding fragment comprises the N-terminal immunoglobulin-like domain of said primate MAdCAM.
108. (Amended) The fusion protein of Claim 107 wherein said  $\alpha 4\beta 7$  integrin-binding fragment is selected from the group consisting of a fragment comprising the entire extracellular domain of primate MAdCAM and a fragment comprising the two N-terminal immunoglobulin domains of primate MAdCAM.
109. (Amended) The fusion protein of Claim 107 wherein said primate MAdCAM has at least about 75% amino acid sequence similarity to SEQ ID NO:2, SEQ ID NO:4 or SEQ ID NO:6.
113. (Amended) A fusion protein comprising a naturally occurring human MAdCAM, wherein said naturally occurring human MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 75% amino acid sequence similarity to SEQ ID NO:2 or SEQ ID NO:4.
120. (Amended) A fusion protein comprising an  $\alpha 4\beta 7$  integrin-binding fragment of a naturally occurring human MAdCAM, wherein said naturally occurring human MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 75% amino acid sequence similarity to SEQ ID NO:2 or SEQ ID NO:4, and said  $\alpha 4\beta 7$  integrin-binding fragment comprises the two N-terminal immunoglobulin-like domains of said human MAdCAM.

121. (Amended) The fusion protein of Claim 120, wherein said  $\alpha 4\beta 7$  integrin-binding fragment is selected from the group consisting of a fragment comprising the entire extracellular domain of human MAdCAM and a fragment comprising the two N-terminal immunoglobulin domains of human MAdCAM.
122. (Amended) The fusion protein of Claim 120, wherein said human MAdCAM has at least about 75% amino acid sequence similarity to SEQ ID NO:2 or SEQ ID NO:4.
126. (Amended) A fusion protein comprising a primate MAdCAM moiety, wherein said primate MAdCAM moiety has binding affinity for  $\alpha 4\beta 7$  integrin and comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2 and the amino acid sequence of an  $\alpha 4\beta 7$  integrin-binding portion of the polypeptide shown in Figure 1 (SEQ ID NO:2), wherein said  $\alpha 4\beta 7$  integrin-binding portion comprises the N-terminal immunoglobulin-like domain.
128. (Amended) The fusion protein of Claim 126 wherein said  $\alpha 4\beta 7$  integrin-binding portion is the complete extracellular domain of the polypeptide shown in Figure 1 (SEQ ID NO:2).
129. (Amended) The fusion protein of Claim 126 wherein said  $\alpha 4\beta 7$  integrin-binding portion consists of the two amino-terminal immunoglobulin domains of the polypeptide shown in Figure 1 (SEQ ID NO:2).
131. (Amended) A fusion protein comprising a primate MAdCAM moiety, wherein said primate MAdCAM moiety has binding affinity for  $\alpha 4\beta 7$  integrin and comprises an amino acid sequence selected from the group consisting of SEQ ID NO:4 and the amino acid sequence of an  $\alpha 4\beta 7$  integrin-binding portion of the polypeptide shown in Figure 2 (SEQ

ID NO:4), wherein said  $\alpha 4\beta 7$  integrin-binding portion comprises the N-terminal immunoglobulin-like domain.

133. (Amended) The fusion protein of Claim 131 wherein said  $\alpha 4\beta 7$  integrin-binding portion consists of the complete extracellular domain of the polypeptide shown in Figure 2 (SEQ ID NO:4).
134. (Amended) The fusion protein of Claim 131 wherein said  $\alpha 4\beta 7$  integrin-binding portion is the two amino-terminal immunoglobulin domains of the polypeptide shown in Figure 2 (SEQ ID NO:4).
136. (New) A fusion protein comprising a naturally occurring primate MAdCAM, wherein said naturally occurring primate MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 90% amino acid sequence similarity to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4 and SEQ ID NO:6.
137. (New) The fusion protein of Claim 136, comprising a first moiety and a second moiety, wherein said first moiety is the naturally occurring primate MAdCAM and said second moiety is at least a portion of an immunoglobulin chain.
138. (New) The fusion protein of Claim 137, wherein said first moiety is joined at its C-terminal end to the N-terminal end of the second moiety.
139. (New) The fusion protein of Claim 137, wherein the second moiety is at least a portion of an immunoglobulin heavy chain constant region.
140. (New) The fusion protein of Claim 139, wherein the immunoglobulin heavy chain is of the IgG class.

141. (New) The fusion protein of Claim 139, wherein the second moiety comprises hinge, CH2 and CH3 domains of an immunoglobulin heavy chain.
142. (New) A hybrid immunoglobulin comprising a fusion protein of Claim 137.
143. (New) A hybrid immunoglobulin comprising a fusion protein of Claim 142, wherein said hybrid immunoglobulin is a homodimer.
144. (New) The fusion protein of Claim 136 wherein said primate MAdCAM is encoded by SEQ ID NO:1, SEQ ID NO:3 or SEQ ID NO:5 or a nucleic acid that shares at least about 90% nucleotide sequence similarity with SEQ ID NO:1, SEQ ID NO:3 or SEQ ID NO:5.
145. (New) A fusion protein comprising an  $\alpha 4\beta 7$  integrin-binding fragment of a naturally occurring primate MAdCAM, wherein said naturally occurring primate MAdCAM has at least about 90% amino acid sequence similarity to SEQ ID NO:2, SEQ ID NO:4 or SEQ ID NO:6, and said  $\alpha 4\beta 7$  integrin-binding fragment comprises at least one immunoglobulin-like domain of said primate MAdCAM.
146. (New) The fusion protein of Claim 145, wherein said  $\alpha 4\beta 7$  integrin-binding fragment is selected from the group consisting of a fragment comprising the extracellular domain of said naturally occurring primate MAdCAM and a fragment comprising the two N-terminal immunoglobulin domains of said naturally occurring primate MAdCAM.
147. (New) A hybrid immunoglobulin comprising a fusion protein of Claim 145.
148. (New) The hybrid immunoglobulin of Claim 147, wherein said hybrid immunoglobulin is a homodimer.

149. (New) A fusion protein comprising a naturally occurring human MAdCAM, wherein said naturally occurring human MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 90% amino acid sequence similarity to SEQ ID NO:2 or SEQ ID NO:4.
150. (New) The fusion protein of Claim 149 wherein said human MAdCAM is encoded by SEQ ID NO:1, SEQ ID NO:3 or a nucleic acid that shares at least about 90% nucleotide sequence similarity with SEQ ID NO:1 or SEQ ID NO:3.
151. (New) The fusion protein of Claim 149, comprising a first moiety and a second moiety, wherein said first moiety is a human MAdCAM and said second moiety is at least a portion of a mutant immunoglobulin chain, said mutant having reduced binding affinity for Fc receptor and/or complement relative to wild type immunoglobulin.
152. (New) A hybrid immunoglobulin comprising a fusion protein of Claim 113.
153. (New) The hybrid immunoglobulin of Claim 118, wherein said hybrid immunoglobulin is a homodimer.
154. (New) A fusion protein comprising an  $\alpha 4\beta 7$  integrin-binding fragment of a naturally occurring human MAdCAM, wherein said naturally occurring human MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 90% amino acid sequence similarity to SEQ ID NO:2 or SEQ ID NO:4, and said  $\alpha 4\beta 7$  integrin-binding fragment comprises the two N-terminal immunoglobulin-like domains of said human MAdCAM.
155. (New) A hybrid immunoglobulin comprising a fusion protein of Claim 154.
156. (New) The hybrid immunoglobulin of Claim 155, wherein said hybrid immunoglobulin is a homodimer.

157. (New) A fusion protein comprising a primate MAdCAM or  $\alpha 4\beta 7$  integrin-binding fragment thereof, wherein said primate MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 90% amino acid sequence similarity to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4, and said  $\alpha 4\beta 7$  integrin-binding fragment comprises at least one immunoglobulin-like domain of said primate MAdCAM.
158. (New) The fusion protein of Claim 157, wherein said primate MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 90% amino acid sequence similarity to SEQ ID NO:2.
159. (New) The fusion protein of Claim 157, wherein said primate MAdCAM binds  $\alpha 4\beta 7$  integrin and has at least about 90% amino acid sequence similarity to SEQ ID NO:4.
160. (New) The fusion protein of Claim 157, wherein said  $\alpha 4\beta 7$  integrin-binding fragment is selected from the group consisting of a fragment comprising the extracellular domain of said primate MAdCAM and a fragment comprising the two N-terminal immunoglobulin domains of said primate MAdCAM.

#### REMARKS

Claims 33, 34, 37, 38, 44, 46, 89-93 and 94-100 drawn to non-elected inventions (Paper No. 18 at page 2, Paragraph No. 2) and Claims 102, 104, 110, 114 and 123 have been cancelled without prejudice. Claims 24, 103, 107-109, 113, 120-122, 126, 128, 129, 131, 133 and 134 have been amended and Claims 136-160 are new. Claims 24-26, 28-32, 101, 103, 105-109, 111-113, 115-122, 124-160 are pending.

Claim 24 has been amended to include the subject matter of Claim 102.

Claim 24 has been further amended and Claims 113 and 120 have been amended to recite "binds  $\alpha 4\beta 7$  integrin." Support for the amendments is found at page 16, lines 25-31, for example.